

SUPPLEMENTARY INFORMATION

Supplementary Table 1. Bacterial strains used in this work

<i>Brucella</i>	Description and characteristics	Source/Reference
Rev1	<i>B. melitensis</i> Rev1 reference vaccine parental; P ₅ ^s , Str _{2.5} ^r , S-LPS	IdAB collection
Rev1Δ <i>wzm</i>	Rev1 in-frame deletion mutant in <i>wzm</i> (Δ27-241); R-LPS	
Rev1Δ <i>wzt</i>	Rev1 in-frame deletion mutant in <i>wzt</i> (Δ68-209); R-LPS	
Rev1Δ <i>wzm</i> Δ <i>wzt</i>	Rev1 in-frame deletion mutant firstly in <i>wzm</i> , and secondly in <i>wzt</i> ; R-LPS	
Rev1-NM	Rev1 strains non-mutated after <i>wzm</i> or <i>wzt</i> allelic exchange; S-LPS	This work
Rev1Δ <i>wzm</i> -NM	Rev1Δ <i>wzm</i> non-mutated strain after <i>wzt</i> allelic exchange during Rev1Δ <i>wzm</i> Δ <i>wzt</i> construction; R-LPS	
Rev1Δ <i>wzm</i> -pSRK <i>wzm</i>	Rev1Δ <i>wzm</i> complemented with the non-integrative vector pSRK <i>wzm</i> ; Km ₅₀ ^r , S-LPS	
Rev1Δ <i>wzt</i> -pSRK <i>wzt</i>	Rev1Δ <i>wzt</i> complemented with the non-integrative vector pSRK <i>wzt</i> ; Km ₅₀ ^r , S-LPS	
Rev1Δ <i>wzm</i> Δ <i>wzt</i> -pSRK <i>wzm-wzt</i>	Rev1Δ <i>wzm</i> Δ <i>wzt</i> complemented with the non-integrative vector pSRK <i>wzm-wzt</i> ; Km ₅₀ ^r , S-LPS	
16M	<i>B. melitensis</i> bv. 1 reference virulent strain; S-LPS	IdAB collection
16MΔ <i>wzm</i>	16M in-frame deletion mutant in <i>wzm</i> ; R-LPS	Zabalza-Baranguá, 2017
BmH38 <i>manB</i> _{core}	H38 carrying the mini-Tn5-Km in <i>manB</i> _{core} (H38::Tn5- <i>manB</i> _{core}); Nal ₂₅ ^r , Km ₅₀ ^r , R-LPS and incomplete core	González et al., 2008
H38::Gm	<i>B. melitensis</i> bv. 1 carrying mini-Tn7- <i>gfp</i> -Gm; Nal ₂₅ ^r , Gm ₁₅ ^r , S-LPS	
BoPA	<i>B. ovis</i> strain PA reference virulent strain; R-LPS	IdAB collection
BoPA::Gm	BoPA strain carrying mini-Tn7- <i>gfp</i> -Gm; Nal ₂₅ ^r , Gm ₁₅ ^r , R-LPS	
2308	<i>B. abortus</i> bv. 1 reference strain; S-LPS	
<i>E. coli</i> - plasmid constructions	Description and characteristics	Source/Reference
S17λpir - pJQKmΔ <i>wzm</i>	Conjugative donor strain carrying BMEI1415 Δ27-241 into pJQKm suicide vector; <i>lac</i> , Km ₅₀ ^r , Suc ₅ ^s	Zabalza-Baranguá, 2017
S17λpir - pSRK <i>wzm</i>	Conjugative donor train with pSRK vector for Δ <i>wzm</i> mutant complementation; <i>lac</i> , Km ₅₀ ^r	
TOP10F' - pCR2.1Δ <i>wzt</i>	Competent strain carrying BMEI1416 Δ68-209 into pCR2.1 cloning vector; <i>lac</i> , Km ₅₀ ^r	
TOP10F'pJQKmΔ <i>wzt</i>	Competent strain carrying BMEI1416 Δ68-209 into pJQKm suicide vector; <i>lac</i> ; Km ₅₀ ^r , Suc ₅ ^s	
S17λpir - pJQKmΔ <i>wzt</i>	Conjugative donor strain carrying BMEI1416 Δ68-209 into pJQKm suicide vector; <i>lac</i> , Km ₅₀ ^r , Suc ₅ ^s	
TOP10F'pCR2.1 <i>wzt</i>	Competent strain carrying BMEI1416 ORF into pCR2.1 cloning vector; <i>lac</i> ; Km ₅₀ ^r	This work
TOP10F'pSRK <i>wzt</i>	Competent strain carrying BMEI1416 ORF into pSRK vector; <i>lac</i> ; Km ₅₀ ^r	
S17λpir - pSRK <i>wzt</i>	Conjugative donor strain with pSRK carrying BMEI1416 ORF for Δ <i>wzt</i> mutant complementation; <i>lac</i> , Km ₅₀ ^r	
TOP10F'pCR2.1 <i>wzm-wzt</i>	Competent strain carrying BMEI1415-16 ORFs into pCR2.1 cloning vector; <i>lac</i> ; Km ₅₀ ^r	
TOP10F'pSRK <i>wzm-wzt</i>	Competent strain carrying BMEI1415-16 ORFs into pSRK vector; <i>lac</i> ; Km ₅₀ ^r	
S17λpir - pSRK <i>wzm-wzt</i>	Conjugative strain with pSRK carrying BMEI1415-16 ORFs for Δ <i>wzm</i> Δ <i>wzt</i> mutant complementation; <i>lac</i> , Km ₅₀ ^r	
<i>E. coli</i> K12	Reference Gram-negative laboratory strain, used as control in antimicrobial susceptibility studies	IdAB collection

LPS: lipopolysaccharide; S: smooth; R: rough; resistance to nalidixic acid (Nal₂₅^r), kanamycin (Km₅₀^r), streptomycin (Str_{2.5}^r), gentamycin (Gm₁₅^r) at the indicated dose (μg/mL); susceptibility to penicillin G (P₅^s), sucrose (Suc₅^s). *lac*: lactose operon.